Remarks

Claims 31-45 are pending in this application. In an Office Action mailed June 7, 2005, the Examiner rejected claims 31-46 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. Appl. Pub. No. 2002/0163440 to Tsui (Tsui) in view of U.S. Pat. No. 6,025,785 to Farris *et al.* (Farris). Applicants respectfully disagree with the Examiner's rejections and request reconsideration in light of the following arguments.

Independent claim 31 provides a programmable control for an appliance which responds to one of a plurality of transmission schemes. The programmable control includes a transmitter for transmitting a radio frequency activation signal based on any of the transmission schemes, a user programming input, and control logic. The control logic implements a rolling code programming mode, a fixed code programming mode and an operating mode. In rolling code programming mode, the control logic generates and transmits a sequence of rolling code activation signals until user input indicates a successful rolling code transmission scheme. In fixed code programming mode, the control logic receives a fixed code from the user programming input then generates and transmits a sequence of fixed code activation signals until user input indicates a successful fixed code transmission scheme. The control logic pauses for a preset amount of time between the transmission of each activation signal, in at least one of the sequence of rolling code activation signals and the sequence of fixed code activation signals, for an amount of time sufficiently long to permit the user to respond. If the user has not responded by the end of the preset amount of time, the control unit transmits the next activation signal in the transmitted sequence of activations signals.

The examiner rejected claim 31 as an obvious combination of Tsui and Farris. Tsui discloses a "programmable universal transmitter" which is programmed by a user, who must know the necessary parameters to transmit an activation signal based on a particular combination of transmission frequency and transmission format before programming the universal transmitter. (*See, for example*, Tsui, paragraphs 36-39.) The Examiner admits that Tsui does not disclose Applicants' control logic. (Office Action, pg. 2.) Applicants agree, as there is no teaching or suggestion in Tsui for transmitting a sequence of rolling code activation signals until user input indicating success is received, transmitting a sequence of fixed code activation signals until user input indicating success is received, or pausing between

transmissions of activation codes for an amount of time long enough to permit the user to respond.

To make up for this shortfall in Tsui, the Examiner proposes Farris. Farris discloses a receiver capable of determining which kind of fixed scheme transmitter is transmitting and then responding only to that particular kind of transmitter.

> A barrier movement actuating receiver learns and responds to fixed code type access codes and rolling code type access code wherein **the actuating receiver includes a programmer** for programming the actuating receiver to accept fixed or rolling type access codes and includes a learning mode for enabling the programmer to add valid access codes to a memory. The **receiver further includes a controller for identifying the type of access code received and a revised access code routine for learning both fixed codes and rolling codes**. The controller can be set to execute the access code routine corresponding to the type of access code identified. After the first code is learned, all subsequent codes learned must be of the same type until the programmer is re-enabled.
>
> Farris, Abstract (emphasis added).

Like Tsui, there is no teaching or suggestion in Farris for transmitting a sequence of rolling code activation signals until user input indicating success is received, transmitting a sequence of fixed code activation signals until user input indicating success is received, or pausing between transmissions of activation codes for an amount of time long enough to permit the user to respond.

The Examiner's sole support that Farris discloses Applicants' control logic which, in rolling code programming mode, generates and transmits a sequence of rolling code activation signals until user input indicates a successful rolling code transmission scheme, is "C4, L14-18, C11, L44-67, C12, L46-65." The first passage, as follows, says nothing about transmitting a sequence of rolling codes until user input indicates success.

> The controller 70 is capable of receiving and responding to a plurality of types of code transmitters such as the multibutton rolling code transmitter 30, single button fixed code transmitter 31 and keypad type door frame mount transmitter 34 (called keyless).

Likewise, the second passage says nothing about transmitting a sequence of rolling codes until user input indicates success. Rather, Farris discloses a receiver capable of determining which kind of signal is received.

> In step 322, microprocessor 85 identifies if rolling codes are expected. If not, flow proceeds to step 338 (FIG. 18) where the bit value is stored as a fixed code bit. When rolling codes are expected, flow continues from block 322 to a decision step 324 where the bit count is checked to identify whether a fixed code bit or a rolling code bit is received. When step 324 identifies a rolling code bit, flow proceeds directly to a step 340 (FIG. 18) to determine whether this is the last bit of a word. When a fixed bit is detected in step 324, its value is stored in a step 326 and a step 328 is performed to identify if the currently received bit is an ID bit. If the bit count identifies an ID bit, a step 330 is performed to store the ID bit and flow proceeds to the storage step 338 (FIG. 18). When step 328 determines that the currently received bit is not an ID bit, flow continues to step 334 (FIG. 18) to determine whether the currently received bit is a function bit. If it is a function bit, its value is stored as a function indicator in step 336 and flow continues to step 338 for storage as a fixed code bit. When step 334 indicates that the currently received bit is not a function bit, flow proceeds directly to step 338. After the storage step 338, flow for the fixed bit reception also proceeds to step 340 to determine whether a full word has been received. Such determination is made by comparing the bit counter with the threshold values established for the type of code expected. When less than a word has been received, flow proceeds to step 342 to await other bits.

This paragraph describes the bit-by-bit examination of a single activation signal.

The third passage also says nothing about transmitting a sequence of rolling codes until user input indicates success. The only user input mentioned puts the receiver in learn mode, an action that must occur before reception of the activation signal being examined.

> When step 750 identifies that rolling code is expected, a step 752 is performed to determine if the present rolling code matches the past rolling code. If no match is found, flow proceeds to step 754 where the present code is stored in a past code register and a return is executed. When step 752 determines that the rolling codes match, the fixed portion of the received rolling code is compared with the past fixed portions in step 756. When no match is detected, the code is stored in a past code register and a return is executed. When step 756 detects a

> match, flow proceeds to step 758 to identify if the learn was requested from the wall control 39. If not, flow proceeds to step 766 (FIG. 19B) where the transmitter function is set to be a standard command transmitter. When step 758 determines that the learn mode was commenced from wall control 39, flow proceeds to step 760 to determine whether fixed or rolling codes are expected. When fixed codes are expected, flow proceeds to step 766 (FIG. 19B) where the function is set to be that of standard command transmitter. When rolling codes are identified in step 760, flow proceeds to step 762 (FIG. 19A).

The Examiner's sole support that Farris discloses Applicants' control logic which, in fixed code programming mode, generates and transmits a sequence of fixed code activation signals until user input indicates a successful fixed code transmission scheme, is "C6, L35-53, C7, L6-L14." The first cited passage, included in the following, says nothing about transmitting a sequence of fixed codes until user input indicates success, but rather describes transmitting a single activation signal. The only user input is prior to generating the signal, and appears to be nothing more than normal operation of a keypad transmitter.

> The row and column conductors are repeatedly sensed at input terminals L0-L7 of the microprocessor 715 so that microprocessor 715 can read each key pressed and store a representation thereof. A human operator presses a number of, for example, four keys followed by pressing the enter key 712, the * key 711 or the # key 713. When one of the keys 711-713 is pressed, microprocessor 715 generates a 40-bit (trinary) code which is sent via conductors 722 to transmitter stage 721 for transmission. The code is formed by microprocessor 715 from a fixed code portion and a rolling code portion in the manner previously described with regard to transmitter 30. The fixed code portion comprises, however, a serial number associated with the transmitter 34 and a key press portion identifying the four keys pressed and which of the three keys 711-713 initiated the transmission. FIG. 11 represents the code transmitted by keypad transmitter 34. As with prior rolling code transmission, the code consists of alternating fixed and rolling code bits (trinary). Bits 730-749 are the fixed code bits. Bits 730-739 represent the keys pressed and bits 740-748 represent the serial number of the unit in which bits 746-748 represent the type of transmitter. In some transmitters 34 no * and # keys are present. In this situation the * and # keys are respectively simulated by simultaneously pressing the 9 key and enter key or the 0 key and enter key.

> FIG. 12 is a circuit description of a fixed code transmitter 31 which includes a controller 155, a pair of switches 113 and 115, a battery 114 and an RF transmitter stage 161 of the type discussed above.

The second cited passage describes a single activation code broken into two code words (emphasis added). There is no sequence of fixed code activation signals and no user input.

> FIG. 13 represents the code transmitted from a fixed code transmitter such as transmitter 30. **The code comprises 20 bits in two 10 bit words** with a blank period between the words. Each word is preceded by a sync bit which allows receiver synchronization and which identifies the type of code being sent. The sync bit for the first code word is active for approximately 1.0 milliseconds and the sync bit of the second word is active for approximate 3 milliseconds.

The Examiner's sole support that Farris discloses Applicants' control logic pausing between the transmission of each activation signal for an amount of time sufficiently long to permit the user to respond is "C7, L15-59, C8-L26-40, C9, L31-61." Each of these passages discloses a switch which places Farris' receiver in a learn mode, an event which happens before the receiver receives any activation signal for learning. Moreover, this switch cannot affect the operation of any transmission because it is associated only with Farris' receiver.

Neither Farris nor Tsui teach or fairly suggest Applicants' invention, including transmitting a sequence of rolling code activation signals until a user input indicates a successful transmission scheme, transmitting a sequence of fixed code activation signals until user input indicates a successful transmission scheme, or pausing between transmissions of activation codes for an amount of time long enough to permit the user to respond. No combination of Farris or Tsui renders claim 31 unpatentable. Claims 32-34, which depend from claim 31, are therefore also patentable.

Independent claim 35 provides a method of activating an appliance controlled by a radio frequency activation signal. If a user indicates that the appliance is activated by a rolling code activation signal, a sequence of different rolling code activation signals is transmitted. Each rolling code activation signal in the sequence is separated from the next

rolling code activation signal by a preset amount of time. The sequence of rolling code activation signals are transmitted until the user indicates a successful rolling code transmission. Data is then stored representing a rolling code scheme used to generate the successful rolling code transmission. If the user indicates that the appliance is activated by a fixed code activation signal, a fixed code word is used to generate and transmit each of a sequence of different fixed code activation signals. Each fixed code activation signal in the sequence is separated from the next fixed code activation signal by the preset amount of time. The sequence of fixed code activation signals is transmitted until the user indicates a successful fixed code transmission. Data is stored representing the fixed code word and a fixed code scheme used to generate the successful fixed code transmission. In response to an activation input, an activation signal is generated and transmitted based on stored data.

The Examiner rejected claim 35 as an obvious combination of Tsui and Farris. The Examiner uses Tsui for the preamble and relies on Farris alone for disclosing the method elements. Neither Tsui nor Farris teach or fairly suggest Applicants' claim 35.

The Examiner's sole basis for asserting that Farris discloses transmitting a sequence of different rolling code activation signals separated, by a preset amount of time, until the user indicates a successful rolling code transmission, is "C4, L14-67, C5, L15-39, C11, L44-67, C12, L46-65." These passages disclose activating a single scheme transmitter and placing a receiver in learning mode before receiving activation signals. There is no disclosure for user indication of a successful rolling code transmission during transmission of a sequence of rolling code activation signals.

The Examiner's sole basis for asserting that Farris discloses transmitting a sequence of different fixed code activation signals separated, by a preset amount of time, until the user indicates a successful fixed code transmission, is "C6, L35-61, C7, L6-14, C8, L26-40." Once again, these passages disclose activating a single scheme transmitter and placing a receiver in learning mode before receiving activation signals. There is no disclosure for user indication of a successful fixed code transmission during transmission of a sequence of fixed code activation signals.

Claim 35 is patentable over any combination of Tsui and Farris. Claims 36-38, which depend from claim 35, are therefore also patentable.

Independent claim 39 provides a method of programming a programmable remote control, the remote control programmable to one of a plurality of appliance activation schemes. User type input specifying activation signal type is received. If the user type input specifies variable code type, variable code activation signals are automatically transmitted spaced apart by a preset amount of time until user success input indicating a target appliance has been activated is received. If the user type input specifies fixed code type, user fixed code input providing a fixed code is received and fixed code activation signals are automatically transmitted spaced apart by the preset amount of time until user success input indicating the target appliance has been activated is received. Information specifying an activation signal for activating the target appliance is stored based on the received user success input. The preset amount of time is sufficiently long enough to permit a user to generate the user success input.

The Examiner rejected claim 39 as an obvious combination of Tsui and Farris. The Examiner asserts that Tsui discloses transmitting different rolling code activation signals, spaced apart by a preset amount of time, until the user indicates the target appliance has been activated. Tsui does not. Tsui discloses that the user must know, *a priori*, what parameters ("one or more transmission formats," par. 43) are required to activate the appliance, and must program these parameters into the transmitter before transmitting. There is no user input indicating success following transmission of variable code activation signals. As can be seen in Tsui Figures 6-8, there is no transmission of any kind during the "Frequency and Device ID Learning Sequence" (Fig. 6), "Calibration Process" (Fig. 7), and "Setting Group Transmission Format Sequence" (Fig. 8). This is reinforced in Figure 4, where the "Data Transmission Routine" lies outside of any learning or calibration process.

The Examiner relies on Farris for disclosing Applicants' transmitting different fixed code signals, spaced apart by a preset amount of time, until the user indicates success. The Examiner relies on the same passages discussed above. As discussed above, Farris does not disclose Applicants' invention.

Claim 39 is patentable over any combination of Tsui and Farris. Claims 40 and 41, which depend from claim 39, are therefore also patentable.

Independent claim 42 provides a system for wirelessly activating an appliance which responds to one of a plurality of transmission schemes. The system includes a radio

frequency transmitter, memory holding data describing the plurality of transmission schemes, and control logic in communication with the transmitter and the memory. The control logic is operative to store a fixed code. If a fixed code is stored, a sequence of fixed code activation signals is transmitted, based on the fixed code and data held in the memory, until input indicating activation of the appliance is received. Each transmission of a fixed code activation signal in the sequence of fixed code activation signals is followed by a fixed code sequence time period without transmission long enough to permit a user to enter the input indicating activation of the appliance. If no fixed code is stored, a sequence of rolling code activation signals is transmitted, based on data held in the memory, until input indicating activation of the appliance is received. Each transmission of a rolling code activation signal in the sequence of rolling code activation signals is followed by a rolling code time period without transmission long enough to permit the user to enter the input indicating activation of the appliance. An indication as to which activation scheme activated the appliance is stored. An activation signal is generated based on the stored indication and a received activation input.

The Examiner rejected claim 42 based solely on Tsui. As described above, Tsui discloses that the user must enter transmission scheme parameters using switches before any transmission occurs. There is no sequence of different rolling or fixed code transmissions, each separated by a user response period, until the user input is received. Claim 42 is patentable over Tsui or any combination of Tsui and Farris.

Independent claim 43 provides a method of programming a programmable remote control to one of a plurality of appliance activation schemes. A test activation signal based on one of the appliance activation schemes is transmitted. If user input indicating appliance activation is received during a preset amount of time following transmission of the test activation signal, characteristics of the activation scheme used to transmit the test activation signal are stored. Otherwise, a different activation signal is transmitted as the test activation signal based on another of the plurality of appliance activation schemes if any of the activation schemes has not been used to transmit an activation signal.

The Examiner rejected claim 43 based solely on Tsui. As described above, Tsui never discloses transmitting a test signal followed by a preset amount of time in which user

input may be received. Claim 43 is patentable over Tsui or any combination of Tsui and Farris. Claims 44-46, which depend form claim 43, are therefore also patentable.

Claims 31-46 are pending in this application. Applicants believe these claims meet all substantive requirements for patentability and respectfully request that this case be passed to issuance. A check is enclosed to cover the Petition fee of $120. Please charge any additional fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

The Examiner is invited to contact the undersigned regarding any aspect of this case.

Respectfully submitted,

MARK D. CHUEY et al.

By _____
Mark D. Chuey, Ph.D.
Reg. No. 42,415
Attorney/Agent for Applicant

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BROOKS KUSHMAN P.C.
1000 Town Center, 22nd Floor
Southfield, MI 48075-1238
Phone: 248-358-4400
Fax: 248-358-3351